



# AMMMTIAC

## 2008 PEO/PM Symposium

### Advanced Materials, Manufacturing and Testing Information Analysis Center

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## Report Documentation Page

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# AMMTIAC's Core Focuses

1. Life Cycle Management
  - Design review/optimization
  - Repair Practices
  - Re-engineering
2. Sustainment Technologies
  - Superfinishing, Specialty Coatings
  - NDI/NDE
  - Corrosion Prevention, Control & Mitigation
3. Acquisition Support
  - Corrosion Planning Review
  - Review for manufacturability
  - Review for sustainability
  - Manufacturing Readiness Review
4. System Engineering
  - Analysis of Alternatives
  - Requirements Allocation Review
5. Manufacturing Technologies
  - Design, Prototype & Process Optimization
6. Testing
  - Design & Execution
  - First Article Testing
  - Materials Through System Levels
7. Materials Engineering
  - Materials Selection, Failure Analysis & Technology Insertion
  - Blast Mitigation

***AMMTIAC is the full life cycle solutions provider***

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# THE AMMTIAC TEAM

## AMMTIAC

### *Alion Science and Technology*

#### Large Businesses

AT&T Government Solutions  
Battelle Memorial Institute  
Chicago Manufacturing Center  
Concurrent Technologies Corp.  
Georgia Tech Research Institute  
IBM  
Southern Research Institute  
Southwest Research Institute

#### Small Businesses

Corpro  
D&W Enterprises Ltd  
IRTC  
Jackson and Tull  
Luna Innovations  
Navmar  
Texas Research Institute  
Tiburon  
Touchstone Research Laboratories  
Triton Systems  
Zimmerman and Associates

#### Academic Institutions

Cornell University  
Ohio State University  
Stevens Institute of Technology  
Virginia Polytechnic Institute

**AMMTIAC's technically diverse and multi-faceted team spans all stages of the system life cycle, providing true "cradle to grave" support to the Warfighter.**

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# AMMTIAC

# INFORMATION SERVICES



# Supporting the Acquisition Community Through Focused Technical Information

- ***The AMMTIAC Quarterly*** - Our technical journal highlighting the latest in DoD acquisition and sustainment activities
  - E.g. F-35 production updates, detecting insulation defects in complex wiring systems, NDT/NDI
- ***Program Manager's Handbook for Corrosion Prevention & Control*** – First of its kind reference on major causes of corrosion, their impact to military systems, and preventative design and maintenance strategies.
  - For use by PMs, product centers, and maintenance orgs.
- ***Readiness Handbook*** – Material selection and design handbook that examines the root technical causes of readiness and availability shortfalls of military assets.
  - Written for program office engineering staffs, field & depot-level maintenance personnel





# Supporting the Acquisition Community

## Through Ready Access to Quality Scientific, Technical, and Operational Support Information

## The AMMTIAC Website

<http://ammtiac.alionscience.com>

- Information Resource
  - 300,000 Reports In AMMTIAC Library
  - Online Newsletter Articles
  - Portal to 30,000 Electronic Reports in TEMS
- Industry Locator (MatPro)
- AMMTIAC Products & Services
  - Handbooks & Databooks
  - Inquiry Service

The screenshot shows the homepage of the AMMTIAC website. At the top, the AMMTIAC logo is displayed with the tagline "Advanced Materials, Manufacturing, and Testing Information Analysis Center". A search bar and a "Checkout" button are also at the top. The main content area features a survey request with the heading "Take our 10 Question Survey!". It asks "1. Which version of the AMMTIAC Quarterly do you prefer to read?" with options "Printed", "Online", and "Both". A "Take Our Survey" button is visible. Below the survey, a message says "Your answer will help us direct our efforts to provide a quality publication that's free and easy to obtain". A link "Please take a moment to fill out our short online survey &gt;&gt;" is provided. On the left, a sidebar menu includes links for HOME, ABOUT AMMTIAC (Mission, History, The IAC Program, Success Stories, What's New, Contact Us), RESOURCES (Library Database, NAMIS, Related Links, MatPro, Calendar of Events, TEMS), TECHNICAL SERVICES (Capabilities, Technical Support, Ask an Expert), and PUBLICATIONS (Quarterly, Products). On the right, there are sections for "IAC NEWS &amp; EVENTS" and "AMMTIAC QUARTERLY", along with a thumbnail image of the AMMTIAC Quarterly publication.



# Supporting the Warfighter

## Through AMMTIAC's Technical Inquiry Service

*Get rapid, reliable answers to your technical questions from AMMTIAC!*



*Contact us directly!*



- Phone: (315) 339-7090
- Fax : (315) 339-7107
- E-mail: ammtiac@alionscience.com

- Modular Armor for Overhead Protection
- Modular Armor for Tent Structures
- B-2 Brakepad
- Galling of the Astern Throttle Valve on the USS John F Kennedy (CV-67)



# AMMTIAC

## PROVIDING SOLUTIONS RELEVANT TO ACQUISITION

### Examples of contract work



# PM Soldier Weapons Fielded System Study

- M4 Carbine Independent Assessment & Review
  - Design
  - Testing Approach
  - Quality, Manufacturing & Maintenance Data
  - Root Cause Analysis
- Recommend Corrective Actions
  - Technology Developments / Insertions
  - Design Improvements
  - Manufacturing Technology
  - Product Improvements
  - Changes Test Design and Execution
  - Improvements to Manuals
  - Lessons Learned to include Root Causes
  - Effects of Different Environments





# Battery Research Network (BATTNET)

- AMMTIAC supports the Battery Research Network (BATTNET)
  - Defense/Industry consortium sponsored by DLA
  - Promote robust & reliable US-based battery manufacturing capability
- Promote better battery technology
  - More field-portable
  - Reduced size and weight
  - Greater endurance and service life
  - Quicker, more recharges
  - Lower costs
  - Improved performance in harsh environments



*The battery power needs of today's solider are great*

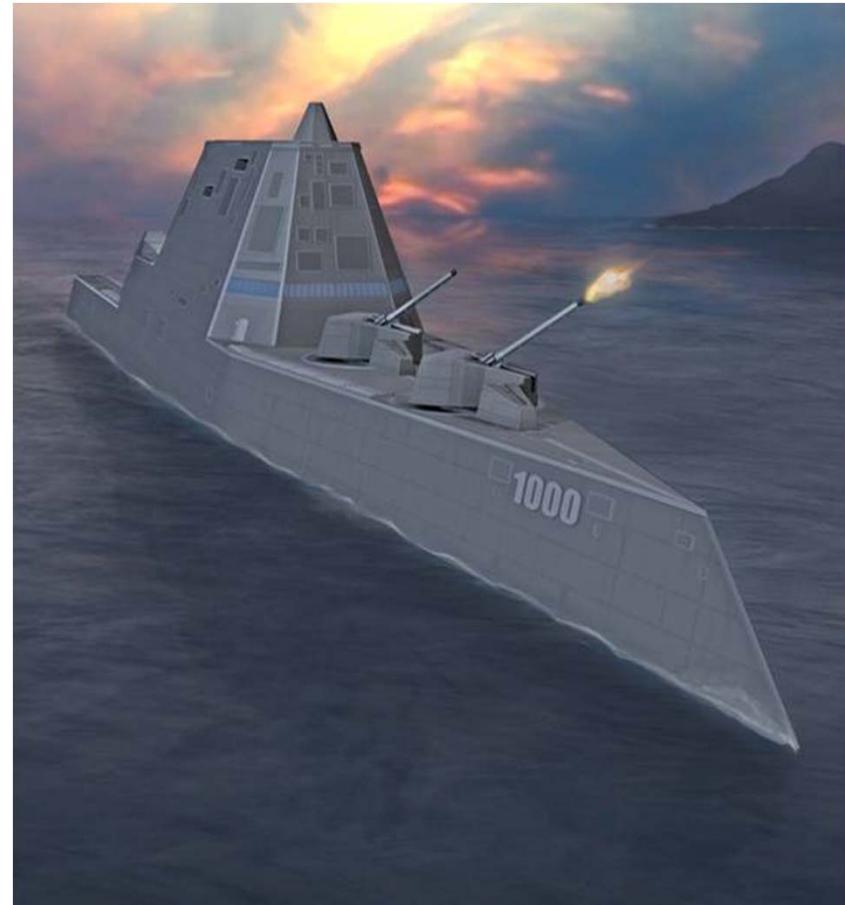
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# Shock & Vibration Engineering Design & Testing

- Review & Evaluate Documents, for Compliance With Shock & Vibration Requirements
- Perform High-Impact Medium Weight Shock Testing for Naval Surface Warfare Center
  - DDG 1000 Integrated Deckhouse & Hangar Design
  - AN/SQQ-89A(V)15/(V)15 UNIT 804 Equipment Rack
  - NATO SEASPARROW MK 29 MOD 4 Guided Missile Launcher
  - Solid State Transmitter
  - Standard Missile
- Prepare Shock Deficiency Correction Plans
- Update MIL-STD-167-1A
- Predict Response of Systems to Shipboard Vibration Inputs
  - Conduct Frequency Response Vibration Analyses





# AMMTIAC

## AMMTIAC Success Stories



# Venom Penetrator

- Navy Surf-Zone De-Mining Program that Uses a Chemical to Neutralize the Explosives
  - Doesn't Leave Unexploded Ordnance
- Performed Life Assessment for Corrosion of Dart Body
  - Reduced Program Risk
  - Determined Dart Body Could Survive a 12 Year Storage Life
  - Recommended a Testing Approach
  - Recommended Dart Fill Procedures
- Re-design Penetrator Nose
  - Live Fire Tests Showed Best Performance (Highest Kill Ratio)
  - 2004 Admiral H. R. Stark Award for the Advancement of Ballistics, Penetrators & Projectiles.

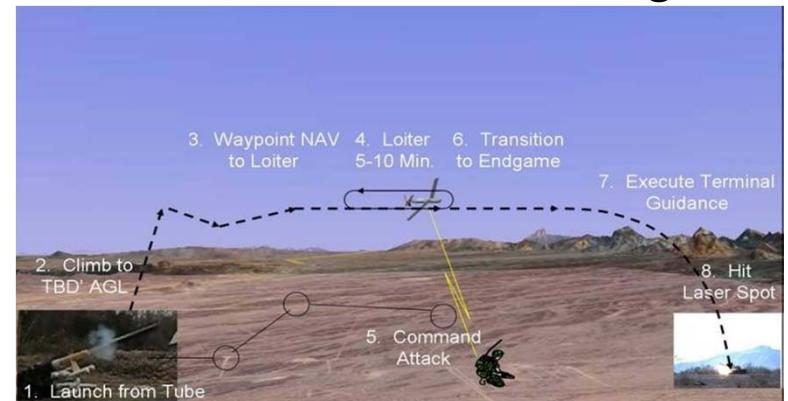


- Re-designed Nose Post Test Showing Penetrator Separation



# Hellshot Mortar Launched UAS Concept

- Army has need for a mortar-launched Unmanned Aerial System (UAS) capability with onboard laser seeker.
- AMMTIAC is demonstrating feasibility by constructing prototype and test launching from a mortar tube.
- AMMTIAC SMEs perform research, development and testing of prototype.
- Approach builds upon successful Navy SLADS UAS vehicle design.
  - Sonochute Launched Air Deployable Sensor (SLADS)
  - Reduces development costs
  - Assessing required design modifications, hardware adaptations, and changes in manufacturing practices
- Gives Army a new precision-guided munitions capability.

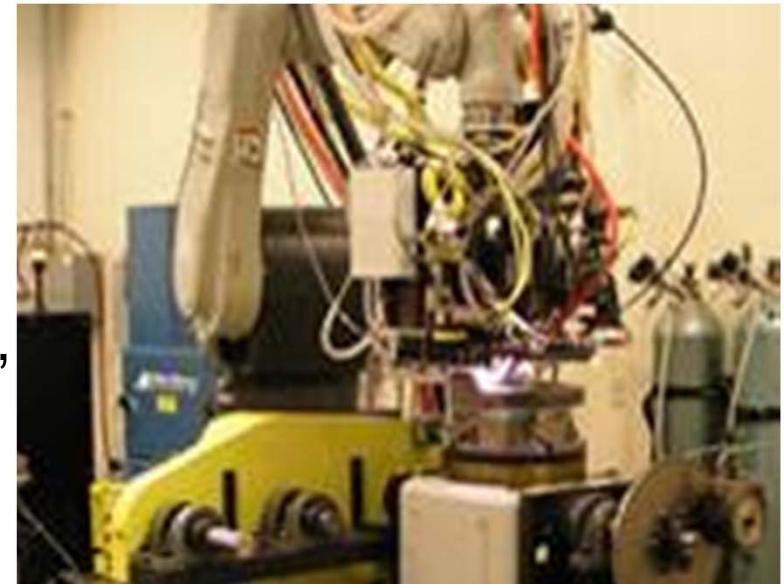




# AMMTIAC

## Low Volume Productivity

- High-power laser “cladding” to extend the useful life of metal parts
- Currently in use by US Navy for ship part refurbishment
- Economic alternative to replacing large, low-production-volume parts
  - Propeller shafts
  - Other large ship components
- Refurbishing worn parts using a custom robotic laser cell
- Robotic system improves productivity, reduces turn-around time
- Winner of two R&D Magazine “Top 100 Awards” for New Development





# Contact Information

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